ELECTRICITY ON THE FARM *Magazine*

AUG.-SEPT., 1951

Skimpy Wiring Steals Money . .
Piped Feed for 5,000 Hens . .
How to Plan for Good Wiring . .
Freeze 'C' in Peaches-Apricots
Rewiring That Paid for Itself

24th Year . . . No. 7

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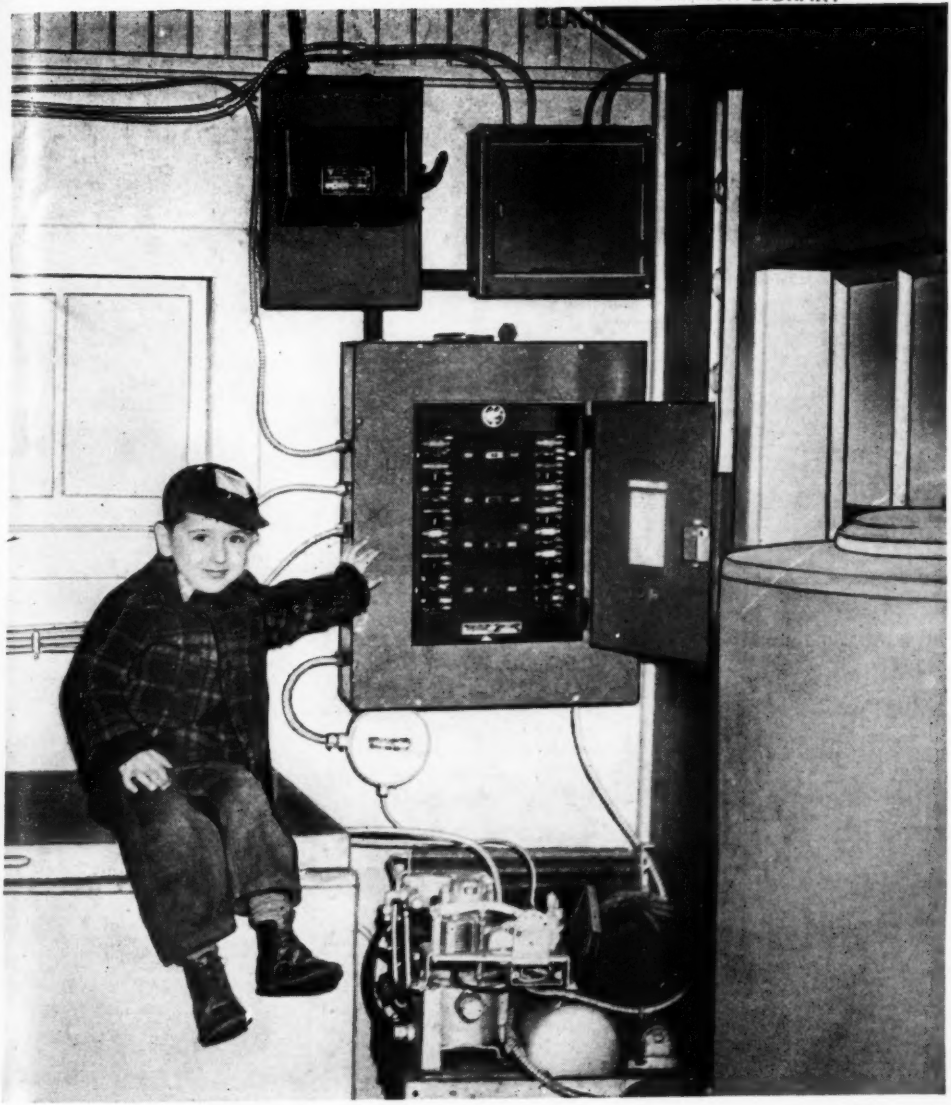

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FarmNews

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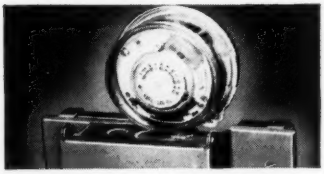
WHAT MAKES IT "TICK"?

New Automatic Intermittent Poultry Feeder

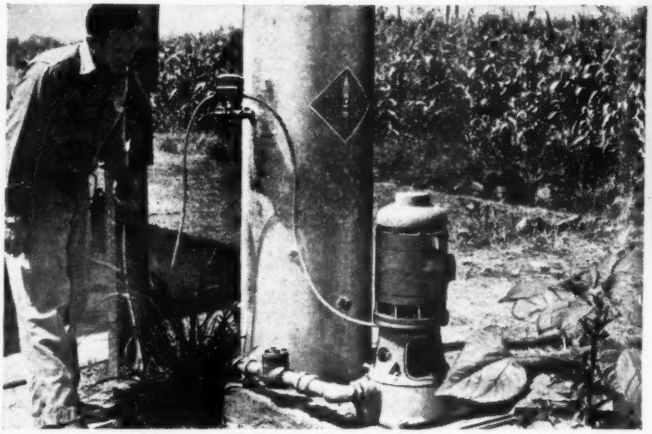
The G-E controls with which this feeder is equipped contribute two important features. First, there is a G-E automatic cycle timer which is simply an electric clock that sends an electric signal to a motor starter. It enables the poultryman to operate the feeder at any interval he chooses. He simply sets the timer and the feeder motor starts automatically.

The second feature is a motor starter with overload control. This means that if the feeder is accidentally overloaded, an electrical relay in the starter shuts off the drive motor automatically. When the overload has been corrected, the motor restarts. For details, check "Poultry Feeder" in coupon.



G-E automatic controls protect the feeder, enable it to be operated intermittently.

Combination deep-well turbine maintains adequate household tap pressure while irrigating up to 30 acres



J. Mahew, pump distributor of Visalia, Calif., examines new deep-well unit. Owner, R. Cunha, says, "The G-E motor on my pump has always given me excellent service."

Designed for use on those farms where a single deep well must supply water for both household and irrigation purposes, this turbine pump has been well received in the farm market. Water is pumped from the well by a turbine pump of two or more impellers below ground level.

The turbine pump differs from the ordinary irrigation pump in that it serves simultaneously to pump water for irrigation and to supply water for other farm and domestic use. When the pump's irrigation valve is open, an ample, steady flow of water is pumped into irrigation ditches. A quick adjustment of this same valve permits the turbine pump to function like any automatic water system, building up a higher pressure in the tank for ordinary use. For details, check "Deep Well Pump" in the coupon.

Poultry feeders like this one are popular with today's poultry farmer. This unit may be arranged in 4 different ways to suit individual poultry house shapes.

General Electric Co.
Section D671-17B, Schenectady 5, N. Y.

I would like additional information on the following equipment:

☐ Deep Well Pump ☐ Poultry Feeder

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FREE! Two interesting and informative booklets on the MOE*dapter* and the MOE *Light Valance*. Write MOE LIGHT, INC., Dept. 22, Fort Atkinson, Wisconsin.

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Editor's Chat

THE GOLDEN SPIKE

At Ogden, Utah in the year of 1869 the first transcontinental railroad in the United States was completed. The final link was made by the driving of a *golden spike*. This tremendous undertaking which was to tie together the vast reaches of a great nation, became a vital factor in the opening of the West. The *golden spike* was not driven for its strength. It was used to signify the completion of the first phase in the development of a transportation system that today extends throughout our country.

This is the year 1951. The electric industry is, in effect, driving its *golden spike*. It signifies the completion of the work of extending lines to the farms of the nation. This is a fitting time for this event inasmuch as farms first started using electricity about 50 years ago. A two mile line was built near Yuba City, California, around the turn of the century for general farm use. About the same time, a one mile line was built near Hood River, Oregon to serve five farms. New York State's first farm line was built in 1901 near St. Johnsville.

New York has just celebrated the Golden Anniversary of the connection of electricity to its first farm. The celebration took place June 30 on the Timmerman farm, one of the first three served in the state. Charles Cook was the first farmer actually served but the connection of the Timmerman farm and the one belonging to William Feeter followed shortly. This original farm line was built by Guy Beardslee. It originated from a generating plant he had built on East Canada Creek to serve small factories and street lighting in St. Johnsville. The operator of a grist mill at Inghams Mill, about 2½ miles up the creek became curious as to whether Mr. Beardslee could transmit some of the power he was generating to his mill. Since the transmission of alternating current had proved successful, Beardslee was very glad to get another customer. But he ran into some difficulty, however, as he could not get a right-of-way to build a straight line to the grist mill. As a result, he had to build 4½ miles along Snell Bush Road. This brought the line through the neighborhood of Messrs. Cook, Timmerman, Feeter, and eleven other farmers. Mr. Cook requested service from Guy Beardslee to run an electric motor for the purpose of filling his silo and threshing grain. After its installation, it was not long before he adapted this new energy to other jobs on his farm.

Farm Electrification Week begins August 26. Fitting ceremonies, such as the one held in New York State on June 30, are being arranged in many sections of the country. These celebrations are for you and your neighbors, the farmers of America. Many of you took a chance years ago because you had no way of knowing whether electricity could pay its way or not. To some, it was a luxury—a source of energy mainly to operate "gadgets and lights." Today we have a different story. We have emerged from this trial and error period. Electric service is no longer considered a luxury but a necessity in our way of life.

Farm Electrification Week can well be labeled "The Birth of a New Era." We have come to the second phase of farm electrification. Your cooperation will continue to be essential in conducting the practical research so necessary to prove the bread and butter value of kilowatt hours to the production of food and fiber on our farms. The research work that has already been completed by you along with our land grant colleges, experiment stations and the electric industry gives us a firm foundation on which to build.

Just what does the future hold in new applications of electric service on the farm? That's a question for dreaming! Work has been going on for several years now on reverse cycle refrigeration. That's the method that lets us utilize the heat from the soil, water or air to make our homes comfortable. They've even taken some of "Bossie's" excess heat from the cow stable to heat a house. Definite progress has been made in the application of electrical energy to the treatment of seed for better quality, faster germination and higher production. Significant progress has been made in the control of pests and bacteria. The use of electrical equipment for upgrading of produce with resultant profit increases to the farmer has just been scratched. Researchers tell us that our knowledge of the application of electrical energy for the preservation and storage of farm products, in spite of the headway we've made, is woefully lacking. We can expect unlimited progress in this field. The remote control of tillage equipment is well within the forseeable future.

Let us look ahead to tomorrow, to the fulfillment of the promise of better farming and better living electrically. And while we keep our sights high, let us not forget the simple everyday ways that electricity can improve our farming practices. That motor on the grindstone, that light over those dark back stairs or that extra outlet for mother's new washing machine. **This, too, is farm electrification.**

WIRING

If, as you read this issue, you feel that we are concerned about poor wiring—you are right. This does not mean that all wiring is bad. Many farmers who have had electric service for years have not had to change any of their major electrical plant. Wherever this situation exists, it is due to good original planning. However—if *you* have been troubled by some of the symptoms later described—do look into your wiring. And if changes are indicated and warranted—make them. Just make sure—when you do—that you are planning for more than next year. We have yet to hear of a farmer who progressively uses less electricity.

Jim Ridout

ELECTRICITY ON THE FARM *Magazine*

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New KELVINATOR "12"

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YOU GET AN EXTRA BUSHEL OF COLD SPACE!
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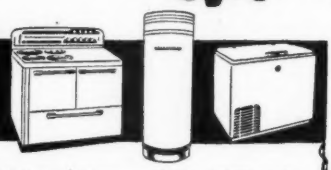
LOOK TO KELVINATOR FOR ALL THAT'S NEW IN FARM APPLIANCES!



See the beautiful new Kelvinator "Automatic Cook" Electric Ranges with new heat-up speed that gets your cooking off to a *fast* start. See the new Kelvinator Farm Freezers with *cold you can trust* for the finest food protection. And choose a Kelvinator Electric Water Heater . . . dependable, automatic!

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Skimpy Wiring Steals Your Money

Watch Your Electrical Equipment for Telltale Signs

By **MORRIS H. LLOYD**†

Have you ever turned on a water faucet and noticed that at first the water spurted out with good pressure but soon slowed down? Perhaps the pipe was too small to let the water flow easily, or maybe the distance back to the pump was so great that most of the pressure was used up overcoming friction in the pipe.

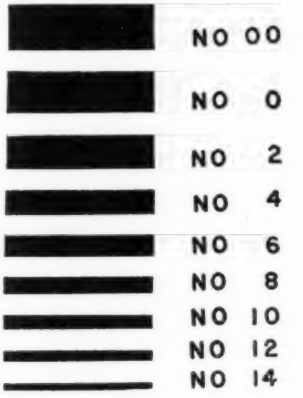
No pipe, not even copper tubing, is perfectly smooth inside. As water flows the roughness of the inner surface causes friction. This friction resists the flow of water and it takes pressure to overcome it. The longer the pipe, the greater the amount of this friction loss or drop in pressure. Also, for any particular size of pipe, the faster we try to draw water through it, the more pressure is used up.

Most of us are familiar with these facts and we wouldn't think of installing a one-half inch pipe several hundred feet from a pump in the house out to a dairy stable to supply automatic water bowls for several dozen head of stock or to provide some fire protection. Such a pipe would hardly be large enough to supply one faucet at any considerable distance. Yet we often give our wiring system similar jobs and wonder why equipment doesn't work as it should.

Electricity flowing through a wire acts very much like water flowing through a pipe. We can't see the electricity, but we can see what happens to the electrical equipment. And we can measure it, even though we can't see it. But instead of measuring the flow of the current in gallons per minute, we measure it in amperes, and we measure the pressure in volts instead of pounds.

Wires, like pipes, are made in many sizes. These sizes are listed by number, but the largest wire, has the smallest number! For instance, No. 14 wire is the smallest size used in the permanent wiring of buildings. Next in size to No. 14 is No. 12. No. 14 and No. 12 are the sizes commonly used to supply most lighting and appliance outlets. Next larger in size is No. 10, then Nos. 8, 6, 4, 2, 0, 00, 000, and 0000. These larger sizes are used to carry current between and into the farm buildings.

†Mr. Lloyd is Agricultural Engineer, Niagara Mohawk Power Corporation, Buffalo, N. Y



Here is the actual size of the conductor, without insulation, used in electric wiring. Note that the smaller the wire is, the larger the designating number.

WHAT YOU LOSE THRU SKIMPY WIRING

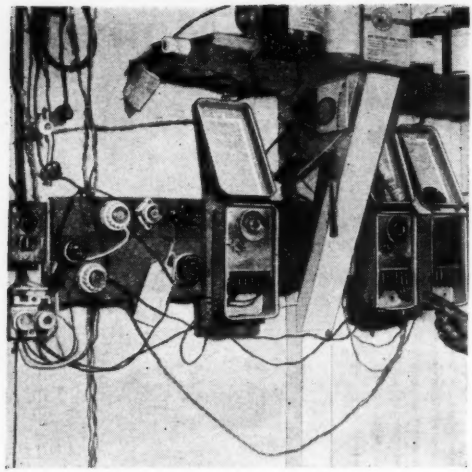
WIRE SIZE A.W.G.	DISTANCE FT.	ELECTRICAL LOAD-AMPERES 6	10	15	20	25	30	35	40	50	60	70	80	90
#14	50	$0.10	$0.26	$0.60										
	100	0.19	**0.52**	1.20										
	200	**0.38**	1.04	2.40										
	300	**0.57**	1.56	3.60										
#12	50	0.06	0.16	0.36	$0.64									
	100	0.12	0.32	**0.72**	1.28									
	200	0.24	**0.64**	1.44	2.56									
	300	0.36	**0.96**	2.16	3.84									
#10	50	0.04	0.10	0.22	0.40	$0.62								
	100	0.08	0.20	0.45	0.80	1.24								
	200	0.16	0.40	**0.90**	1.60	2.48								
	300	0.24	**0.60**	1.35	2.40	3.72								
#8	50	0.03	0.06	0.15	0.25	0.40	$0.60	$0.77						
	100	0.05	0.12	0.30	0.50	0.80	1.20	1.54						
	200	0.09	0.24	0.60	1.00	1.60	2.40	3.08						
	300	0.14	0.36	0.90	1.50	2.40	3.60	4.62						
#6	50	0.02	0.04	0.09	0.16	0.25	0.36	0.49	$0.64	$1.00				
	100	0.03	0.08	0.18	0.32	0.50	0.72	0.98	1.28	2.00				
	200	0.06	0.16	0.36	0.64	1.00	1.44	**1.96**	2.56	4.00				
	300	0.09	0.24	0.54	**0.96**	1.50	2.16	2.94	3.84	6.00				
#4	50	0.01	0.03	0.06	0.08	0.15	0.22	0.32	0.40	0.62	$0.90	$1.22		
	100	0.02	0.05	0.12	0.16	0.30	0.44	0.64	0.80	1.24	1.80	2.44		
	200	0.04	0.10	0.24	0.32	0.60	0.88	1.28	1.60	**2.48**	**3.60**	**4.88**		
	300	0.05	0.15	0.36	0.48	0.90	1.32	**1.92**	**2.40**	**3.72**	**5.40**	**7.32**		
#2	50		0.02	0.04	0.06	0.10	0.13	0.18	0.24	0.40	0.60	0.77	$1.00	$1.26
	100	0.01	0.03	0.07	0.12	0.20	0.25	0.36	0.48	0.80	1.20	1.54	2.00	2.52
	300	0.02	0.06	0.14	0.24	0.40	0.50	0.72	0.96	1.60	2.40	3.08	**4.00**	**5.04**
	300	0.04	0.10	0.21	0.36	0.60	0.75	1.08	1.44	2.40	3.60	**4.62**	**6.00**	**7.56**

Beyond the allowable current carrying capacity of rubber insulated wire

TABLE IS BASED ON 500 HOURS USE OF LOAD
ELECTRICITY AT 2¢ PER KW-HR

J.B.Stere

Any wire presents some resistance to the flow of electricity. This chart shows how much that resistance can cost you. The cost figures given in bold type represent a loss of electricity so great that it will cause unsatisfactory operation of the equipment involved.



Jumping Jehoshaphat! This is the kind of a mare's-nest that can lead to trouble. Don't take such chances with your wiring. It's not only dangerous, it just can't supply electricity for proper operation of equipment. A good wiring system eliminates the need for extension cords.

Copper is used for most wiring systems because it offers low resistance to the flow of electricity. However, it does have resistance and if we try to carry more amperes of electricity through a wire than it is designed for, the wire heats up and the insulation may be damaged.

Each size of wire is designed to carry a certain number of amperes of current without overheating. For instance, No. 14 wire can carry fifteen amperes and No. 12 can carry twenty amperes without danger of charring the insulation. This doesn't mean that No. 14 wire can carry fifteen amperes of current for several hundred feet without a serious loss in pressure, known as "voltage drop." It might do the job well enough for twenty-five or thirty feet, but if the distance were fifty feet we would need No. 12 wire to deliver the same pressure at the far end of the circuit, or for one hundred feet we would need No. 8 wire.

A good, competent electrician knows how to figure the size of wire for each part of the farm wiring system and he will recommend wire sizes that will not only do the jobs you want to do now, but for years in the future.

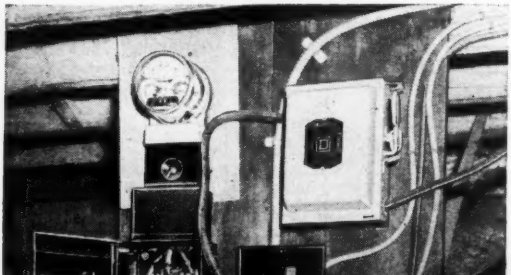
The effect of drop in pressure in a pipe line is usually easy to see. The effects of voltage drop in an electric circuit may not always show up as easily. We may realize that some appliance doesn't seem to work as it should but we may blame the equipment instead of the wiring.

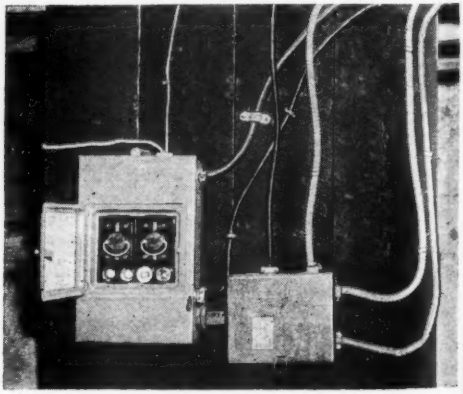
Let's see how different kinds of electrical equipment behave when the voltage or pressure delivered by the wiring is too low.

How Low Voltage Affects Equipment

First, let's take lighting equipment and lamps. Have you ever noticed that lights may appear dimmer as more of them are turned on, or when some other appliance is started? The starting of a motor may cause the brightness of bulbs to dip a little. If they come back up when the motor is up to speed, this is not serious. But if the lights stay dim, it is a good indication that wires should be larger. For every one per cent drop in voltage, the light given off by an ordinary light bulb drops about three per cent. Thus a drop of two per cent in voltage causes the light given off by a bulb to drop seven per cent, but the electricity it consumes drops only three per cent. In other words, the amount of light given off drops a lot faster than the cost of burning the lamp. If

. . . . . (More on page 29)





Wiring picture above is wrong. That cable coming directly off the main fuses served a water heater. An electric range was fed by the cable running down to the small fuse box. Neither of these were properly supported and both violated the code. At the right you can see the proper installation that replaced the makeshift wiring. The new panel contains separate fused circuits for both the range and water heater. When the changeover was made the meter was relocated on a yard pole.

Piped Feed for 5,000 Hens

Motors and Continuous Cables Solve Cage Feeding Problem

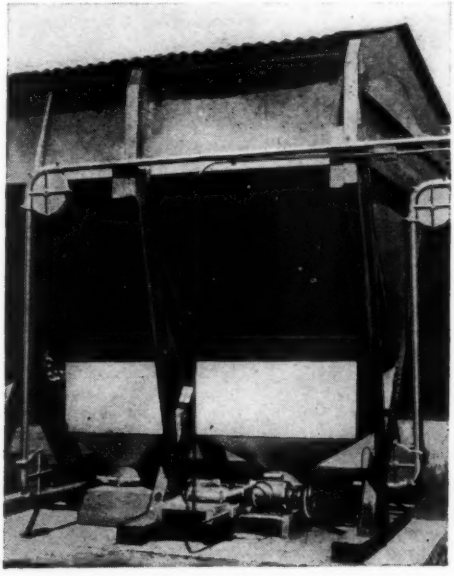
By G. H. SULLIVAN†

Wired cage housing for laying hens is practiced by many poultrymen in California. The cages are generally placed in rows and on a platform about waist high. They are protected from the weather and sun by a simple roof that is separate and apart from the cages. Several rows of cages are usually placed under one roof. There are no sides or ends to the protecting shelter. Good ventilation, maximum sanitation, ease of handling birds and simpler collection of eggs is obtained. Since there are never over two birds per cage, accurate records can be kept on production. This also minimizes the spread of communicable diseases.

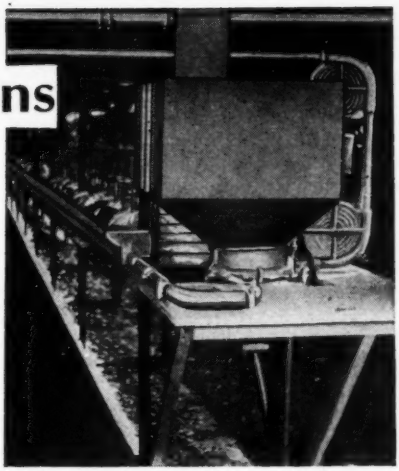
Automatic watering, of course, is just a question of piping. But complete automatic cage feeding is something else. However, with the help of an automatic poultry feeder manufacturer, some of the California poultrymen have licked this problem. They got to wondering why they couldn't pipe their grain or mash rations like they piped the water—and that's just what they did.

Dr. Bravo's installation at Puente, California, is a typical example. About a year ago he became very much concerned about the amount of labor that was required to feed his layers by hand. Consequently he started investigating to see how other poultrymen were handling their grain. A little way from San Diego, he found a system which he thought would fit his needs. As a result he is now feeding 5000 hens with the aid of six ¼ H.P. motors.

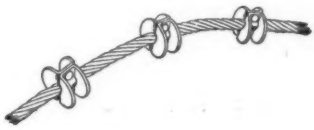
†Mr. Sullivan is Rural Representative for Southern California Edison Company, Los Angeles 53, Calif.



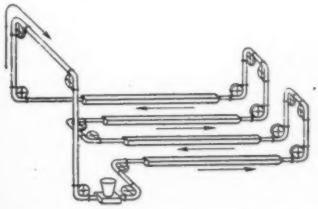
The bulk storage bin holds a week's supply of feed. It has two sections so that grain or pellets can be fed as well as mash. In this picture you can see the pipe (right) that takes feed to the five feeder units. It returns at the top and runs down by the hopper outlets, making a continuous circuit. Note the ¼ hp motor that drives the cable. Speed is reduced by Vee belt drive to a worm gear unit.



This is one of the feeder units. Grain is supplied to the hopper through metal chute from supply pipe at top. From this hopper the cable takes the feed past four rows of cages. The motor is located under the supporting platform and, besides driving the cable, turns an agitator in the hopper.



Metal stampings are riveted together on a ¼ inch stranded cable at 3 inch intervals to form double discs. The grain is carried along in a metal tube in the pockets between the discs.



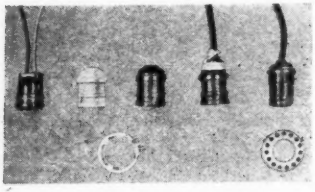
Here is a diagram of the way the cable type feeder works. Grain falls from hopper at lower left into pockets between discs on the cable as it travels through the tube. It is dragged around through the feed troughs in front of each of four rows of cages. The entire layout shown uses one continuous cable driven by a ¼ hp motor.

With this system, the grain is transported up and down, across and over and at any angle by . . . . . (More on page 23)

How to Plan for Good Wiring

It Must be Safe, Convenient, Expansible and Economically Justified

The first requirement of any wiring system is safety. Safety can be assured if the wiring is installed in accordance with the National Electrical Code, using materials approved by the Underwriters Laboratories or other recognized authorities. This



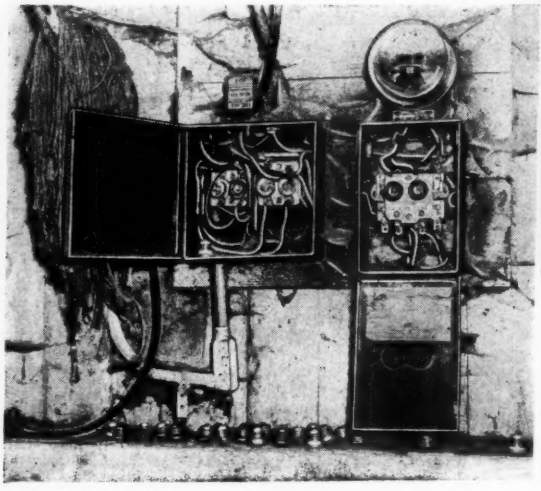
Brass shell lamp sockets should never be used on drop cords, in barns, basements, or other damp locations. They should not be used for portable trouble lamps. Instead use any of the types shown here. They are (L to R) weatherproof socket, porcelain socket, composition socket, composition socket with cord grip clamps, and a bakelite socket, shade holders for the first four are shown below at left and for the bakelite socket at right.

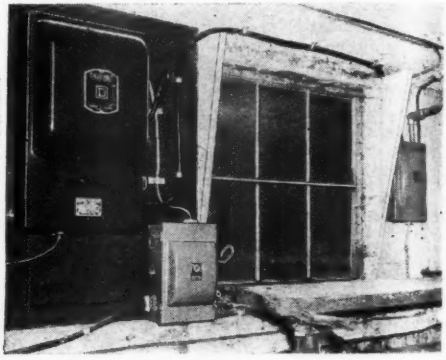
Code is a set of rules for installing wiring materials so that persons, buildings and their contents will be reasonably free from any danger or hazard connected with the use of electricity. These rules have provided real protection. It is rare, indeed, for an electrical fire to be caused by the permanent wiring of a building when that wiring is properly maintained in good condition. It is poorly maintained and makeshift wiring not installed according to the Code that may cause trouble.

Just because wiring is installed according to Code rules doesn't necessarily mean that the job is well planned for convenience in the use of electricity. Neither does it mean that new equipment and appliances can be installed without a lot of changes in the wiring system. In fact, it is stated in the National Electrical Code that "good service and satisfactory results will often require larger sizes of wire, more branch circuits, and better types of equipment than the minimum which is here specified." This is where wise planning comes in. So we come to the other requirements of a wiring system; that it be convenient to use, easy to expand, and economical. To be easy to use, the outlets should be placed in convenient locations so that portable equipment can be plugged in where needed. Lights should be located to throw light where it is needed. Switches should be located so that one doesn't have to enter a dark room and grope around. The size of the wires should be large enough to deliver the electricity at proper pressure, so that appliances will operate as they should.

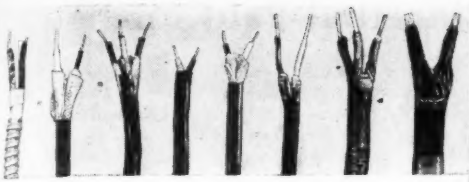
The feeder wires—that is, the main lines from the electric meter to the different buildings—should be heavy enough to supply plenty of power both to the equipment in use and to a reasonable amount of equipment that may be installed in the future. These feeders and the service entrance where power is brought in to the farm should be arranged so that changes can be made in the wiring of one building without changing the wiring in several others.

A wiring system designed like that may not be the lowest in first cost, but over the years it will prove to be the most economical. Many farmers have

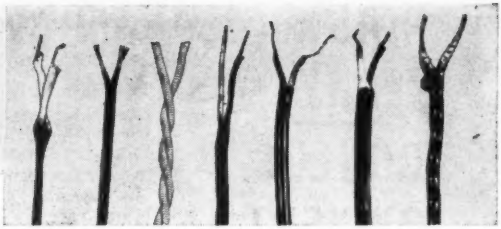




These before and after shots were taken on a large dairy farm. The old service entrance (left) supplied current to the entire farm and was so overloaded that there was always a pile of burned out fuses on the shelf. When the farm was rewired, the meter was relocated on a yard pole and the barn supplied with its own 200 ampere entrance switch shown above. The equipment it serves includes a 5 hp hay finishing fan and a 2 hp milking machine. Ample capacity is provided for the future installation of a gutter cleaner.



Typical material used for wiring homes and buildings includes (L to R): No. 14—2 wire armored cable; No. 14—2 wire nonmetallic sheathed cable; No. 14—3 wire nonmetallic sheathed cable; two samples of the plastic or neoprene jacketed nonmetallic cable for use in a moist location, such as a stable, where regular insulation would rot; a No. 12—2 wire and a No. 10—3 wire nonmetallic sheathed cable; a No. 6—3 wire service entrance cable. In this last one, the strands of the third wire are wrapped around the two insulated conductors. It is used as the ground connection. The protective fabric covering encloses the three wires. When it is peeled back, the ground wire is unwound and twisted into a single cable for connection.



Appliance cords vary, depending on their use. Shown here are (L to R) cotton covered cord for portable lamps and small appliances; rubber covered cord for portable lamps and small appliances; twisted-pair cord for portable lamps or for drop cords; cotton covered cord for drop cords; rubber covered cord for vacuum cleaners, washers, small tools; rubber covered heavy duty cord for use in shop or other farm buildings for portable tools and machines; heater cord for use on irons, portable heaters, etc., is not waterproof and should not be used where it drags on floor.

found it necessary to make major changes in their wiring systems when installing gutter cleaners, hay finishers, and other heavy-duty equipment that operates on a pressure of 230 volts. Some have decided to do without time- and labor-saving equipment rather than to spend money on additional wiring. Others have made the changes and at the same time have made allowance for extra capacity in the new wiring, so that other labor-saving appliances could be installed later on with very little extra expense to wire them up.

When it is necessary to make major changes in wiring, some wise planning for the future generally pays off well. It is much cheaper to do a good job in the first place than to tear out existing service and feeder wiring and change it to larger sizes. Much of the old material has to be scrapped. The labor cost of the original job is wasted and extra labor is needed to take it out.

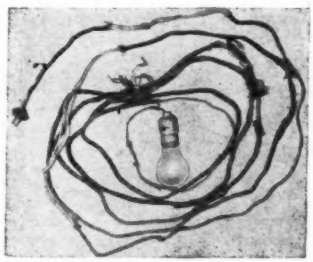
Here are some suggestions that will apply to certain farm buildings, and to the service and feeder wires.

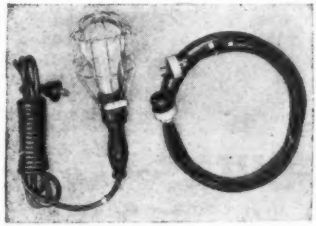
Many farm houses are equipped with modern kitchen and laundry appliances. For the home where an electric range, water heater, automatic washer, and laundry drier are to be used, the service entrance wires should be at least three No. 4 and better three No. 2 wires. The circuit to the electric range should be No. 6 wire, while three No. 10 wires should be run to the clothes drier. Separate circuits, usually of No. 12 wire, should be run to automatic washer, food freezer, and water pumps, and the freezer and pump should be operated at 230 volt pressure if possible.

For an average poultry house used for both laying hens and for brooding baby chicks, a service entrance of at least three No. 6 wires will be needed. In a three or four story house where ten or twelve brooders may be used on the first floor, and where heating cable may be used extensively on the water pipes, No. 2 wire should be used for the service entrance. Plenty of capacity in the service wires is most important in any building where incubators and brooders are used, so that they can deliver the amount of heat needed.

Of all the different farm buildings, probably the dairy barn is the one where the largest motors are used. Twenty-five years ago we used to think that a sixty-ampere service entrance with three No. 6 wires was ample for an entire farm. Today many dairy barns alone need more capacity than wires of this size can deliver. With hay finishers, crop driers, and gutter cleaners becoming more common many farmers who have changed their wiring systems have installed a two-hundred-ampere service just for the barn and milkhouse. In regions where this equipment is becoming more common, anyone who plans to rewire should fig-

. . . . . (More on page 24)





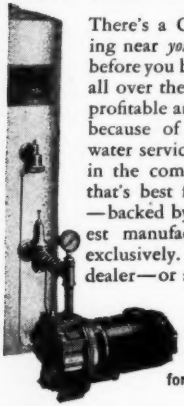
When working around machinery, or in damp locations, use a substantial rubber covered cord like the ones shown at the right. Notice the rubber covered plug and socket and the protective guard on the portable lamp; the armored plug and connector on the extension cord. The makeshift cord at the left just invites trouble. Such cotton covered cords and heater cords are not made to stand dragging around on the floor. What's more, there is no lamp guard, a brass shell socket is used, there is no bushing to keep the threads of the socket from cutting the cord, the plug has no metal or rubber covering and it is broken. Don't take a chance with cords like that.

ASK ANY GOULDS OWNER!

Saxon Wilson, Meshoppen, Pa.—"The low cost of my Goulds pump amazed me—and its upkeep is nothing!"

A. C. Pittard, Atlanta, Ga.—"We use *plenty* of water, and our Goulds has never let us down."

Ask Your Neighbor —



There's a Goulds owner living near *you*. Talk with him, before you buy a pump. Farms all over the country are more profitable and more enjoyable because of Goulds running water service. There's a pump in the complete Goulds line that's best for *your* farm, too —backed by the world's largest manufacturer of pumps exclusively. See your Goulds dealer—or send this coupon.

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Dual Service —
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Please send details on your pumps and name of nearest distributor. I have:

☐ Deep Well ☐ Well to be dug or drilled
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Name.....

Address.....

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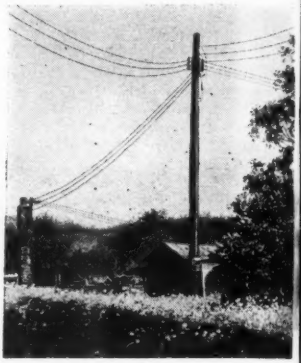
Rewiring that Paid for Itself

Mr. Lester Canham operates a poultry, dairy and fruit farm at Albion, New York. Electric service was brought to the farm in 1934. The entire wiring installation consisted of five outlets in the house, including lights, receptacles, and switches. The three-wire service entrance had a capacity of sixty amperes, which was considered ample for many farms in those days.

In 1935 Mr. Canham wired his poultry houses, and in the following year he wired the dairy barn. Since the wiring in these buildings served just a few lights, two No. 14 wires were used to bring the power out of the house, running overhead to the poultry house, then on to the barn. Shortly after putting electric lights in the poultry house, Mr. Canham installed an electric incubator, and in order to keep the electrical pressure or voltage up to where it should be at the incubator he changed the overhead wires from No. 14 to No. 6 between the house and poultry house, but the "riser" coming up the side of the house was left at No. 14, the smallest size used in house wiring.

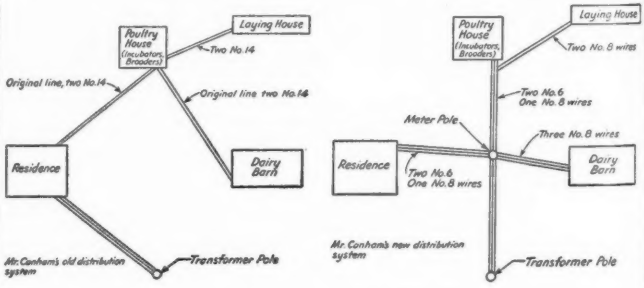
Finding that electrical equipment saved time and labor, Mr. Canham installed a water pump, milker, and milk cooler in 1936 and also added two more incubators. Then he had to change all of the wiring from the house to the outbuildings. The two No. 14 wires coming out of the house were changed to three No. 10's, and a third wire was run overhead to the poultry house. This made it possible to operate the incubators on 230 volt pressure instead of 115 volts. From the poultry house to the barn two No. 10 wires replaced the two No. 14's.



Here is the new yard pole on the Canham farm. Three wire service runs to house (top left), poultry house (lower left), and dairy barn (lower right). Wires from the power line are at top right. The meter is located on the pole.

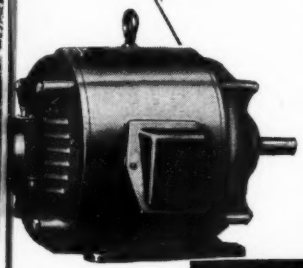
Even this didn't get rid of low voltage troubles. Mr. Canham says that he had considerable trouble with thermostats on the incubators, and fuses burned out frequently. Even one of the main sixty ampere fuses burned out quite often. It didn't blow out, as fuses do on short circuit, but just got so hot that it burned.

After several years of such trouble, Mr. Canham called on the farm service representative of his power supplier. They



By serving his buildings from a yard pole, Mr. Canham doesn't have to take all the power he uses into the house and a large part of it out again. Each building now has its own direct service. This shows the old and new wiring layouts.

Save Hours of Time and Work With Equipment Driven by Century Motors



Century repulsion start induction, brush lifting single phase motor.

You can get your chores done faster, easier and better when you let Century electric motors do much of the hard labor. In growing seasons, that means more time for jobs that make you money. In slack seasons, it means more time for relaxation.

Be sure you get Century motors on your water systems, milking machines, barn cleaners, wood saws, tool grinders, grain elevators, hammer mills, washing machines, hay dryers, refrigeration equipment, ensilage cutters and other farm labor-saving machines.

Century Electric Company is celebrating its 50th year in the electrical industry.

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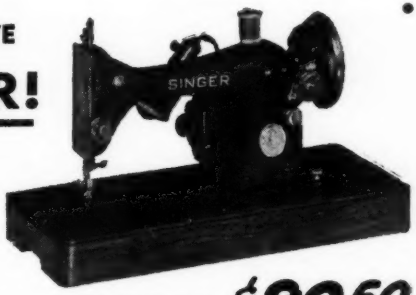

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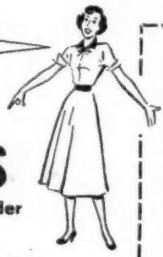

SINGER SEWING CENTERS

For address nearest you, look in phone directory under SINGER SEWING MACHINE COMPANY

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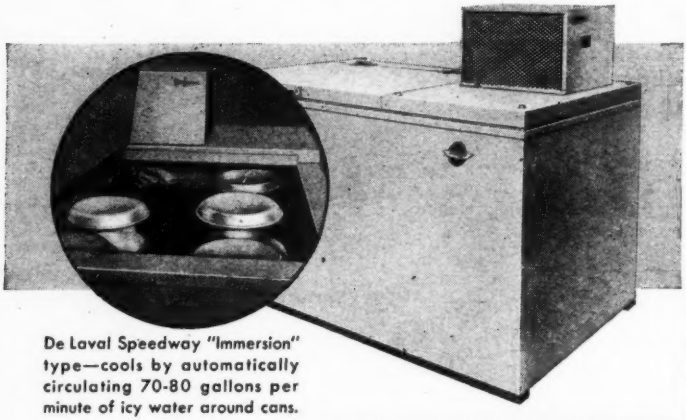
De Laval Speedway "Front-Loader"—cools by automatically spraying icy water over cans.

Take Your Choice...For Low-Cost Dependable Cooling!

A De Laval Speedway Milk Cooler—either "Front-Loader" or "Immersion" type will safeguard your milk check...by fast, dependable cooling . . . and protect your pocketbook through dependable, low-cost operation. A wide range of sizes and models. See your De Laval Dealer today.



De Laval Speedway "Immersion" type—cools by automatically circulating 70-80 gallons per minute of icy water around cans.

De Laval

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looked the situation over and decided that the solution to these difficulties was to bring the service wires from the transformer to a pole in the yard, located about an equal distance from house, barn, and poultry house. He did just this. The meter was mounted on this pole and from there service wires were run directly to each of the three buildings. Thus each building received its electric service over a direct pathway. It was no longer necessary to take all of the power into the house and a large part of it out again.

From the pole to the residence two No. 6 and a No. 8 wire are used. The same combination supplies the poultry buildings and three No. 8 wires run from the pole to the barn. The service cable on the barn is heavy enough to carry more than the amount of power now used.

Mr. Canham says, "We keep some lights on all night for growing birds, both chickens and turkeys. We used kerosene lanterns before we had electricity. Often in busy seasons we neglected to clean the lanterns every day and sometimes one would go out and we lost birds through piling up. I believe that the birds we lost would have paid for a lot of electric service.

"I also figure that we have paid for our rewiring job several times over in the saving in power bills."

Rewiring That Paid for Itself

"Rewiring our place is making money for me, because our farm wiring now has enough capacity to handle another battery brooder house," says Henry Pagel, Route 2, Yakima, Wash. "The way things were, we had outgrown our electric wiring.

"Besides keeping a flock of around 1000 layers, we operate a small hatchery and sell an average of 16,000 White Rock chicks each year. We find a lot of buyers want their chicks started, so by increasing our brooding capacity we'll get more customers for our hatchery. There is more money for the hatchery, too, in holding chicks until they are started.

"We've started raising White

Emden and White China geese in addition to our chicken business. And we find brooding pays with goslings, even though they don't require as much heat as chicks. We keep the temperature at 85 degrees for goslings, as compared to around 95 degrees for chicks, and we find we've definitely cut mortality rate. We will raise and market around 200 geese this year.

"We paid $127 for our rewiring job, and I figure we'll get that back twice in a single year by being able to step up chick brooding capacity. More important to me, though, is the safety factor. The old wiring was beginning to warm up with heavy loads.

"When we bought this 10-acre place back in 1941, it was just open land with the house. Since then we've built seven laying houses, two brooder houses, a feed house, a battery brooder house—plus a garage

Mr. Pagel's new wiring provided capacity for another battery brooder house. He finds it profitable to sell started chicks. The brooder is also used to start goslings as shown.

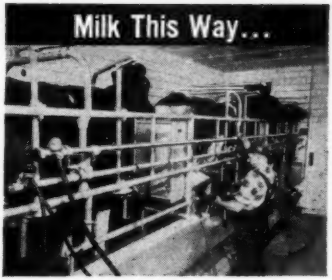
and shop. Every building has electricity. So, we've actually rewired for the second time.

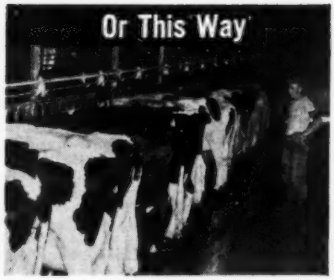
"This time we put in No. 6 wire for our main feeder lines, and while we were rewiring, we split our new wiring into six separate circuits.

"Having the pump on a separate circuit makes good sense, because if we ever have a fire out here, we probably could cut all our other circuits loose and still keep the pump running for water to fight the blaze."

Less Labor Milks More Cows and Handles More Milk with the Flexible Model F

DE LAVAL COMBINE MILKER





INSTALLED IN A SEPARATE MILKING ROOM...

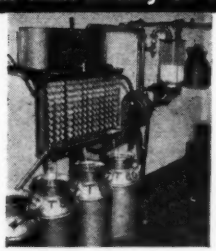
Milking 30-35 cows per hour per operator is common practice in many dairies using the De Laval Combine Milker installed in a separate milking room in connection with either a loose housing or stanchion-type barn. Stooping, squatting, walking from cow to can and carrying milk are eliminated.

OR IN YOUR DAIRY BARN OR MILKING SHED

Dairymen are enthusiastic about the wonderfully efficient results obtained with the De Laval Combine Milker installed in the barn or milking shed. One man milks 50 or more cows per hour. The teat cups are moved from cow to cow and the milk is conveyed through sanitary pipe to the milk room.

...and Handle Your Milk in Any of These Three Ways

Run Directly into Cans... Most Combine users have installations which automatically filter the milk and fill the 40 qt. cans in the adjacent milk house. Carrying and pouring are eliminated.



Aerate, Cool and Can... In some sections, such as California, the installation is arranged to filter and convey the milk and discharge it over a surface cooler, thence into the 40 qt. cans.

Discharge into Farm Tank The De Laval Combine discharges the milk into the refrigerated farm tank, from which it is either "canned off" or pumped directly into the milk tank truck.

De Laval

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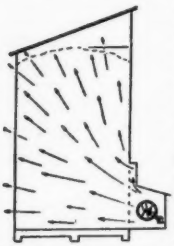
HARTZELL

Air-Moving Equipment

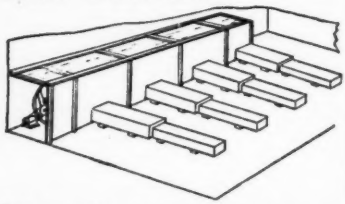
for the farm

GRAIN DRYERS



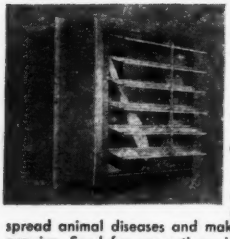
Sketched is an application of a Hartzell grain-drying fan to an existing crib—so simple that you can do it yourself. Hartzell furnishes detail drawings for forced-air drying in this and other types of grain-storage structures. Quick drying boosts grain value, reduces moisture losses. Hartzell fans are built to last, too, and to do a good job without power waste.

HAY DRYERS



With a good hay-drying system in your mow you make hay while it's *green*—and it *stays* green, with all the extra value preserved. Shown is one of the many systems; we have drawings which will help you do the work yourself. But use a good fan! A *Hartzell* fan—rugged, long-lived, power-saving.

BARN VENTILATORS



You can install a Hartzell barn ventilating fan in a window, or any outside wall, easily, as shown. And it not only adds to comfort but also removes excessive moisture, heat, foul air and the other air troubles which rot buildings, spread animal diseases and make barn-work oppressive. Send for suggestions, information, data on the wide Hartzell line. *Good equipment.*

DAIRY FARMERS:

Send for the brand-new Hartzell booklet "Dairy Barn Ventilation." It's packed with information, suggestions, ideas. You need it. It's free.

HARTZELL

PROPELLER FAN CO.

Agricultural Division

DEPT. M **PIQUA, OHIO**

Cover Picture

Henry Jello, aged four, is pointing to the new entrance panel in his Dad's milk house. There's quite a story behind it!

A hunter was walking by the farm buildings owned by Andrew Jello of Lebanon, Connecticut. He was quite alarmed to see smoke pouring out of one of the farm buildings. He ran up to the house and warned the Jello family who rushed out to find that their milk room was on fire. Fortunately the family together with the passing hunter put out the fire before it had done extensive damage to the milk room or the large dairy barn beside the milk house.

After the fire was put out, it was found that it started with the wiring in the milk house. This wiring was installed a number of years ago when electric service had been made available to the farm and provided a single circuit for the lights. In the meantime Mr. Jello had installed a milking machine for his 35 cows and not one but four milk coolers. A six-can cooler, two-four can coolers and a two-can cooler. These different coolers were used when his production varied between fall and spring. Sanitary requirements called for hot water in the milk room. So Mr. Jello installed an electric water heater. But that was "the straw that broke the camel's back." The one circuit for lights couldn't carry all this extra current so it just got hot and set the building on fire.

An electrician was called in to see what could be done. As a result Mr. Jello put in a three-wire entrance with sufficient circuits so that each motor could have its own source of power. Separate circuits were also provided for lights and the water heater.

Now all the electric equipment works properly. The motors run easily without getting overheated; the water in the water heater heats quickly; and best of all the electric bill has averaged $3.50 per month cheaper. This alone will pay for the cost of wiring in a little over three years.

W. S. Hale, New London County Agent, (Conn.) sent us this good picture and story.

Fires destroyed an estimated $688,460,000 in American property during 1950. According to Lewis A. Vincent, general manager of the National Board of Fire Underwriters.

FAIRBANKS-MORSE

Submersible Pump

It's brand new! Operates entirely under water — including the motor! Water-lubricated; water-cooled. Pumps without noise or vibration. Only one pipe is needed inside casing. Has a capacity of 1,600 g.p.h. at 60-foot settings, and pumps efficiently at 400 feet. Ideal for farms, homes and country estates. See this new submersible pump at your local Fairbanks-Morse dealer's store. Or write for details to Fairbanks, Morse & Co., Chicago 5, Ill.

FAIRBANKS-MORSE

a name worth remembering

MAKE MONEY FILING SAWS

Earn up to $2 or $3 hour spare time filing saws for neighbors with electric machine. No experience needed to turn out perfect cutting saws with Foley Saw Filer. FREE BOOK. **FOLEY MFG. CO., 917-1 Foley Bldg., Minneapolis 18, Minn.**

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Home Milk and Cream PASTEURIZER

is the *only* home pasteurizer with MOTOR-DRIVEN AGITATOR and ALL-OVER WATER BATH HEATING and COOLING for complete bacteria kill and better flavor. features *required* in commercial pasteurizers Be sure you get the finest! Your family's health depends on it!

Write for FREE folder on prevention of milk borne diseases and details of 10 Day Trial Offer!

SAFGARD DIVISION

Ask your dealer for a SAFGARD

Grand Sheet Metal Products Co.
2505 W. 24th St., Chicago 8, Ill.

Come to think of it, about the NLY thing that works for CHICK-N FEED these days is a CHICK-N . . . . The very HEIGHT of MBARRASSMENT — TWO eyes EETING through a KEYHOLE . . . JINGLEJOLLY DEPT.: "I t ALONE in the moonlight, For-ken by women and men, And umbled over and over—"I'LL EVER eat ONIONS again!" . . . . ITTING-THE-PEAK Dept.: A UMB gal turning a DEAF ear to BLIND date . . . . TOASTMAS-ER: a fellow who uses a few PPROPRIATED words . . . . HIS one is from A. READER, wish he'd have given us his name o we could give him full credit) IERSON, IOWA—"A CUB re-orter, looking for a job on a well-nown tabloid newspaper, was iven a TEST assignment. Said the ditor, "If you can write a snappy eadline for the following situ-tion, we'll HIRE you.—'A young ouple got a preacher out of bed t three o'clock in the morning in rder to marry them.' HOW would ou title THAT?" "That's EASY," aid the young fellow. "I'd just ead it 'PARSON TIES KNOT IN IS SHIRTTAIL!'" . . . . (Caw! aw!) And from JANET M. ILT. ROUTE #1, WESTERN ORT, MARYLAND comes the INGLEJOLLY-OF-THE-MONTH: QUIRRELS are BRIGHT though MPOLITE, As CULTURED hu-ans view them. THEY wisely AT the NUTS they MEET—While E just LISTEN to them." . . . . ODDEN THOUGHT: SOME folks e SO prejudiced that they won't VEN listen to BOTH SIDES of a HONOGRAPH RECORD . . . . friend of ours sez that the moth-aten idea that BRUNETTES have weeter dispositions than LONDES is a FALLACY. HE ez HIS wife has been BOTH! . . . . ormula for making application to oin a nudist colony—JUST leave our name and undress . . . . Then here was the fellow who made a ortune in FLEA POWDER—HE tarted from SCRATCH . . . . Ac-ording to the DAILY OKLA-OMAN, via QUOTE, a CEME-ARY notice in SHEFFIELD, NGLAND read as follows: "Ow-ng to staffing difficulties, GRAVE igging will be carried on by a KELETON staff." . . . . PARTING HOUGHT: a WORLD TRAVEL-R is one who USUALLY returns ith BRAG and BAGGAGE . . . . our pun-peddler—DUFFY.

NO BACK-WRENCHING STOOP!
NO HEAVY LIFT!

IT'S AN EASY *Swing* WITH

VICTOR'S

ALL-NEW LEVEL-LOAD MILK COOLER

Counterbalanced front and top lift easily and fold back out of the way. Loading and unloading the cooler thus becomes a quick, simple, clean job instead of a tiring, dangerous chore

OTHER IMPORTANT ADVANTAGES OF VICTOR'S REVOLUTIONARY NEW DESIGN

- Easy to clean: entire interior easily accessible.
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- Five Year Warranty on sealed mechanism.
- Galvanized and stainless steel throughout.
- Builds ice bank of 30 lbs. of ice per 10 gallon can.
- Specially designed pump to insure fast heat transfer.
- Counterbalanced front and top.
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- Baked enamel finish.
- Seams of tank are solder-sealed.
- Fibreglas insulation.
- No clogging by straw or other foreign matter.
- Double and single duty models.
- Hermetically sealed condensing unit.

Victor

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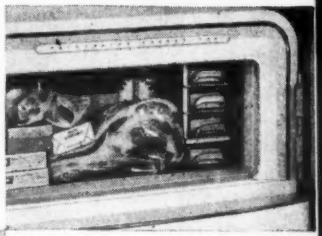
PRODUCTS CORPORATION • HAGERSTOWN, MD.

MANUFACTURERS OF THE FAMOUS VICTOR QUICKFREEZE

Fits your way of living...

The new Frigidaire Imperial—made for once-a-week shopping!

THIS 10 CU. FT. FRIGIDAIRE 2-door Imperial gives you up to 50% more storage space than old refrigerators of comparable size. Plenty of head room for tall bottles, and even the Hydrators "stack up" to make extra space. Yes, there's space galore, plus the utmost in food-keeping conveniences . . . like the acid-resisting, all-porcelain interior — aluminum shelves that can't rust — Basket-Drawer for small things. And the Frigidaire Imperial gives you *three kinds* of SAFE Cold, each with its own refrigerating system.



Food-Freezer Cold in separate Locker-Top. Gives constant, safe protection—weeks on end—for up to 73 pounds of meats and other frozen foods. Cuts down on trips to locker plant.

Super-Safe Cold in Food Compartment. Foods retain freshness and flavor days longer because of the Super-Safe Cold provided by Frigidaire's exclusive Refrig-o-plate.

Hydrators, provided by chilling coils in the walls, keeps nearly a

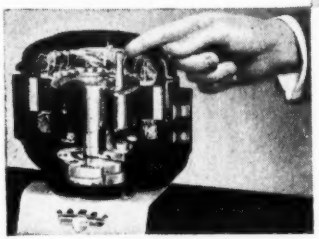
Hydrators, provided by chilling coils in the walls, keeps nearly a bushel of fruits and vegetables garden-fresh. Actually restores original crispness.

Refrig-o-plate.

Defrosts itself! The Imperial's main food compartment has the exclusive Refrig-o-plate, providing positive moisture control and automatic defrosting. And foods don't change temperature during defrosting.

See the new Frigidaire Refrigerators—and other Frigidaire Appliances at your Frigidaire Dealer's next time you're in town. Or write Frigidaire Division, General Motors Corporation, Dayton 1, Ohio. In Canada, Leaside (Toronto 17), Ontario.

RURAL ELECTRIFICATION WEEK Starts August 26th



All three refrigerating systems are operated by a single Frigidaire Meter-Miser. It's the simplest cold-making mechanism ever built—and only Frigidaire has it!

Frigidaire

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Refrigerators • Electric Ranges • Automatic Washer
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Frigidaire "Thrifty-30" Electric Range—ideal for farm kitchens—is low in price, compact, thrifty! Only 30 inches wide, it has ample capacity for big harvest meals. The thrifty giant oven has room to bake 6 big pies, or 10 loaves of bread, at one time.

New Frigidaire Food Freezers are available in several sizes designed to meet your needs. Whichever size you choose, you'll find new convenience features, new beauty. Your frozen foods are protected by a constant flow of *safe cold* from Frigidaire's Meter-Miser mechanism.

Frigidaire reserves the right to change specifications, or discontinue models, without notice.

Electrical Housekeeping

Edited by NAN SHAW, 329 Memorial Union, Ames, Iowa

Freezing "C" in Peaches and Apricots

Add Health to These Family Freezer Favorites

"There's nothing like home canned peaches!" How often you've heard that. But now home *frozen* peaches are family favorites, too.

Choose peaches for freezing with special care. All peach varieties are not necessarily suitable for freezing. Your state college or experiment station can give you a list of local varieties which have given highest quality when frozen. Then, select peaches that would be prime for eating—mellow but firm, and uniformly ripe with no green in sight. Best for freezing are peaches picked ripe from the tree, when this can be managed.

Scald peaches a few at a time.

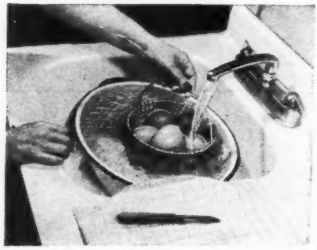
The useful home-canning trick of dipping peaches into boiling water and then into cold to slip skins off easily may be used in preparation for freezing, but it has one drawback. The scalded outer layer tends to soften so that the frozen fruit turns out a little less firm than if peeled without scalding. However, by doing a few at a time, it is possible to keep this softening to a minimum.

To prevent peaches from darkening during freezing, the best treatment that has been found in USDA comparative tests is to use powdered ascorbic acid (vitamin C). Besides preventing browning, it also makes the frozen peaches an excellent source of this vitamin of which peaches normally have only a little. Citric acid crystals provide another effective treatment to prevent darkening. Drug stores sell both.

Preparing a few packages at a time often has advantages. Hand peeling is less of a chore if the job is small. Any peaches that show green patches can be held out for another day. And preparing a few packages can be more easily fitted into your day's regular work than a large scale freezing job.

Here are home freezing directions for peaches:

Have sirup ready made in proportions of 3 cups sugar to 4 cups water. Four cups of sirup will cover about ¼ bushel of peaches—12 pounds—in packaging.



Chill quickly in cold running water.

To prevent browning: If using powdered ascorbic acid, add 1 teaspoon to each quart (4 cups) of chilled sirup. If using citric acid crystals, dissolve ¼ teaspoon in 1 quart water, and dip peaches, as soon as sliced, into solution for 1 minute before packaging.

Pack sliced peaches in moisture-vapor-resistant containers made especially for frozen foods; or, if desired, use glass jars or tin cans. Be sure fruit is completely covered with chilled sirup. Above fruit and sirup leave at least 1" head-space in cartons; 1½ inches in glass jars or tin cans. A piece of crumpled parchment paper placed on top of peaches will help keep fruit submerged.

Seal each package tightly and label. Freeze as soon as possible at zero degrees F. or lower. If using freezer locker facilities, hold packages in refrigerator until taking them to locker plant.

Apricots must be handled much the same way as peaches except that they are more apt to darken in freezing. They have much more enzyme activity. And within the apricot itself, the peel has more enzyme activity than has the flesh of the fruit. For this reason peeling the apricots will cut down the darkening effect of the extra enzymes. Of course, if you add more ascorbic acid than usual to the syrup, the browning will

Slice them directly into containers.

be reduced. If you freeze apricots with the peels on, add about half again as much ascorbic acid as you would for peaches. That's about one and one half teaspoons for each quart of syrup. A quart of syrup is enough for about eight pint packages. As in freezing peaches, the syrup should be prepared in advance. Add the ascorbic acid when the syrup is cold and just before using it.

The apricots should be processed in the following manner. Because of the fact that oxygen in the air causes the darkening of the apricot, scald just a few at a time. When scalding them, be careful about overheating the fruit. Apricots have such tender flesh that over scalding makes them mushy. However, you can scald them and slip the skins off if you use a quick scald at boiling temperature. Cool immediately and peel. Work with just enough at one time to fill one or two containers.

Pour about one third to one half cup of the syrup, containing ascorbic acid, into the bottom of each pint container. Halve or slice the apricots directly into the container as you slip off the skins. That way the air doesn't have a chance at the apricots. Then press the fruit well under the syrup, add more syrup if it's needed, and seal.

Both glass jars and metal containers have much in their favor for freezing apricots. Such containers are airtight and absolutely moisture and leak proof. However, plastic containers and the polyethelene-lined cartons are good, too. If you use the carton type container, press the sides to get rid of the air before sealing.

Apricots of either Moorpark or Blenheim varieties, are best for freezing. They have less tendency to darken than some others. You will want to freeze apricots which are sound, firm and table ripe with no signs of decay. Apricots with a good yellow ground color are better than those with a greenish cast. If those you buy are a little on the green side, sort them and freeze them as they become table ripe. The quality is better when you work in small quantities and the work isn't as hard.

New Ideas in Home Freezing

By **ADELAIDE FELLOWS**

Progress in the frozen food field has been rapid. So many foods freeze successfully and are already accepted in a matter-of-fact way, that you may feel there is nothing you haven't tried. Here are a few ideas, however, which may be of interest to you:

Dr. Faith Fenton, Professor of Food and Nutrition at Cornell University, finds that baked, stuffed potatoes, topped with grated cheese, freeze very well. When the potatoes are baked, they are cut in half as usual, contents scooped from shells and whipped, with butter and milk added. The shells are refilled and grated cheese sprinkled over top. Then the potatoes are wrapped and frozen. You may have found that mashed potatoes don't freeze successfully at home—they do freeze fairly well when frozen at −70° F. but of course this is impossible for the average homemaker. For this reason, the baked stuffed potatoes are a good solution and wonderful for emergency reserve.

Doctor Fenton also says that cooked vegetables in a sauce may be frozen satisfactorily. The sauce must fully cover the vegetables, so as to exclude the air from the package.

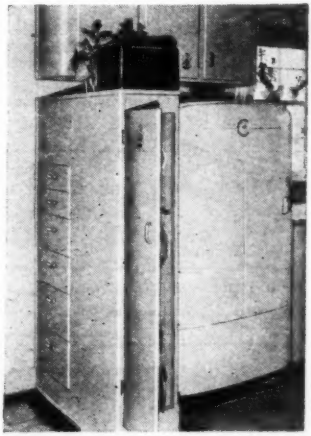
Shredded beets, cooked for a few minutes in a small quantity of water, then packed tightly, produce a good product.

Dr. John E. Nicholas, Professor of Agricultural Engineering, Pennsylvania State College, gives these directions for freezing fish and poultry:

Fish and poultry should be cleaned (poultry firmly trussed), then frozen as quickly as possible, unwrapped. Fill a large pan with ice cubes and water, the temperature of which should be 32° to 33°. Roll frozen fish or poultry in ice water about half a minute, forming a glaze, then wrap in any type of paper. Treated in this manner, they will remain in good condition for about 6 months. Packages should be handled carefully so as not to chip the ice from the food.

A Kitchen Storage Idea

This kitchen was long and narrow. Every inch of space had to be carefully planned so that all the supplies could get stored.



The eating center was separated with a storage wall to match the height of the refrigerator. The top drawers can hold silverware and table linens, while the lower drawers are fine for children to use for personal supplies and school books. The radio is at a convenient spot for easy selection of programs while at work or meals. Then too there are convenience outlets for the plugging in of table appliances.

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10 State Street MANKATO, MINN.

Cool Treatment

Most fruit stains may be removed when they are fresh by pouring on boiling water. But there are exceptions to this general rule.

The exceptions are fresh peach, pear, cherry or plum stains, which contain enough tannin to be darkened and set by heat. On stains made by these four fruits, use cool water and glycerine or a soapless shampoo, say USDA chemists. Never use soap because it sets the stain. First, sponge the stain with cool water. Then work a little glycerine or soapless shampoo into the stain, rubbing lightly between the hands. Let stand several hours, then apply a few drops of vinegar and allow to remain a minute or two before rinsing thoroughly with water.

This same method is recommended for fruit stains on wool or silk. On these fabrics boiling water should never be used, because it may injure the fabric.

Cool water and glycerine are also recommended for stains made by tomato juice and catsup.

Canning Tips

Remember to use your electric fan at canning time. Place a fan to push hot moist air out an opened window. Or maybe you'd like it on the floor to move the air to keep you cool and dry while husking corn, peeling peaches or some other preparation job. *Do not use your fan to cool a canner or jars.*

* * *

At canning time, an electric tea kettle, plugged into a convenience outlet, can free an extra unit on your range for surface cooking.

* * *

Use your electric dishwasher with the rinse cycle only to heat clean jars for hot jar packing.

* * *

Electric roasters make it possible to take a lot of steamy kitchen work out on a porch or down in the basement. Have you used yours for making butters, catsup, jams, chili sauce and relishes? Too, they can be used for boiling water baths. It's possible to cover pint jars with water during the processing.

Fall Sewing

4508—Sew these separates. Each takes just ONE yard of 54 inch for all sizes given. Sizes 12, 14, 16, 18 and 20.

9330—Your youngster will be able to get into this dress herself. Buttons march from collar to hem in a slanty line. Easy to wash and iron, too. Sizes 2, 4, 6, 8, and 10. Size 6 takes 2 yards of 35 inch fabric and ⅝ yard contrast.

Send THIRTY CENTS (in coins) for each pattern to: ELECTRICITY ON THE FARM, 196, Pattern Department. 243 West 17th Street, New York 11.

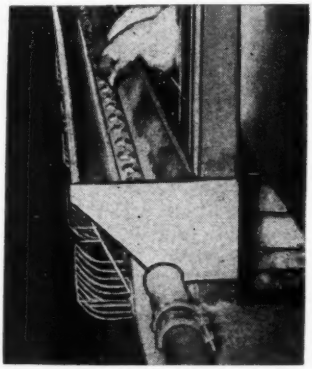
Feed for 5,000 Hens

. . . . . (Here from page 9)

¼" stranded steel cable running in tubes. Dr. Bravo's complete operation consists of five feeding units and a sixth unit that brings grain from the main storage bin to the 5 hoppers on the feeding units. One unit feeds approximately 1000 hens. These hens are housed in 4 rows of cages, each row being 100 feet long. This brings the total length of one unit to slightly over 400 feet.

Now just what goes to make up one of these units and what makes it tick? First of all, we have a hopper setting on top of a steel tube. A double toothed sprocket drives a ¼" stranded steel cable through the tube. Double discs are attached to the cable at 3" intervals. This cable drags the grain from the hopper through the tubing to the feeding troughs. A ¼ H.P. motor is used to power each unit.

Besides driving the sprocket the motor also drives an agitator in the hopper. This keeps the mash from bridging over and



This is one of the feeder troughs on Dr. Bravo's poultry farm. The cable pulls the feed along through four such troughs before returning to the hopper.

provides a constant flow of grain to the cable. A 100 to 1 worm gear and a 4 to 1 belt reduction provides a cable speed of a little more than 11 feet per minute. Turns are made by taking the cable around an idling pulley housed in a cast iron frame. Proper tension is kept on the cable by the proper adjustment of these idler pulleys. Automatic

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Just load it . . .

Simply place tableware in the convenient racks. Front-opening door and two independently sliding racks make loading and unloading easy.

Latch it . . . Latch the door—press the switch. Exclusive Hobart revolving wash action *power-washes* completely, yet gently. Two *powered* hot water rinses clean completely. Circulated, *electric-blower* hot air drying dries tableware sparkling clean . . . even better than you could do by hand!

Leave it . . . Once you press the switch, you can leave the dishwasher. It does the work and you can do the other things that you've never had time for before!

For literature, write *KitchenAid* Home Dishwasher Division of The Hobart Manufacturing Co., Dept. KEF, Troy, Ohio.

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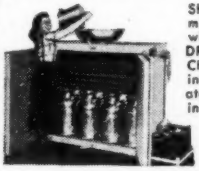

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slack take-up can be provided by letting a weight, or spring, pull against one of the adjustable idlers.

In addition to 5 units like the one just described, Dr. Bravo has a sixth unit that transports grain from the main storage bin to the 5 smaller hoppers. This unit works on the same principle, but the cable is enclosed in steel tubing all the way. At each of the supply hoppers there is an opening leading into a small iron chute. This allows the grain to drop from the cable as needed. When the grain reaches a set level in the small hopper, no more can be dropped.

A big advantage to this cable feeding system is that there is no way grain can be wasted. The open troughs where the hens feed are so shaped that the cable will pull the grain not eaten by the hen on through the tube to the next trough and so on. Then it is simply re-circulated again when the unit is allowed to operate continuously. Automatic time switches are installed that can be set to operate the system in conformity with any feeding schedule.

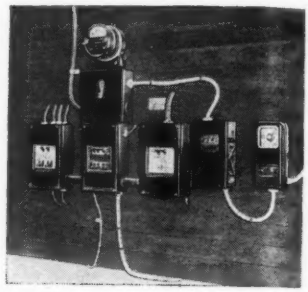
Now Dr. Bravo never has to lift a bag of feed. He doesn't even see the grain except in the feeders alongside the cages. The feeding operation is completely automatic. He doesn't even have to turn the unit on and off. Each week 5000 lbs. of grain is delivered in bulk to his large storage bin. The only work involved in this whole feeding operation is the signing of the grain receipt. Dr. Bravo says that in two or three years he will have saved enough on labor alone to pay for the feeder.

How to Plan for Good Wiring

. . . . . (Here from page 11)

ure on an installation that will take care of such machinery.

In the milkhouse, too, more electrical equipment is in common use than was found even five years ago. Milk coolers, of course, are very common since most cities will not accept milk that hasn't been properly cooled. Sanitary regulations have made it necessary to have hot water in the milk house. Many farmers who installed a ten- or twelve-gallon water heater have found so many uses for hot water that they have changed to a thirty- or forty-gallon and even larger heaters, such as they use in the home. In cold climates milkhouse heaters are now very popular. This heater usually is controlled by a thermostat set to hold the milkhouse temperature just above freezing. This prevents ice from forming on the floor and makes it possible to have running water on tap. And it keeps the milkhouse warm at chore time. Any milkhouse with all this equipment needs three service wires of at least No. 8 size, and better No. 6.



This service entrance is located in a modern home on a poultry farm. There is never any need to replace a fuse because all wiring is protected by circuit breakers. If an overload occurs these breakers automatically open, stopping the flow of current. They can be reset by simply pushing the button.

We could go on to talk about many other farm buildings, but let's turn to the subject of the outside wiring.

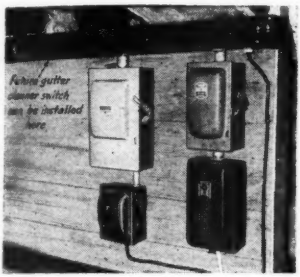
On many farms the buildings are located in such a manner that the best way to get electricity to them is from a pole in the farmyard. The power supplier's wires run from the highway in to this pole, where the meter is located. Then from this meter pole heavy wires are run to each of the principal buildings such as the farm house, dairy barn, poultry house, granary, and so on. Thus each building served from the meter pole has its own service wires. Changes can be made in wiring in one building without disturbing the wiring in the others.

On some farms it may be better to place the meter on the out-

side of one of the buildings instead of on a pole, especially if that building is near the center of the group of buildings or if a considerable amount of electricity will be used in it.

The size of overhead wires from the meter to the buildings is very important. The greater the distance, the larger they must be to deliver the power to the job at correct pressure. Where spans are fifty feet or more, wire smaller than No. 8 should never be used or it may come down in a storm. On spans less than fifty feet No. 10 should be the smallest size, just for strength. But in most cases No. 6, 4, or 2 will be needed, particularly on long runs.

Since no two farms are alike, it isn't easy to say exactly what



A 200 ampere service feeds into the wiring trough at the top of this entrance panel. Room for expansion is thereby provided. Switches shown are for hay finisher (right) and for feeder to other farm equipment (left). This supplies current to a distribution panel on the floor below.

each should have for a good wiring system. However, farmers today can take advantage of a great amount of helpful advice that is theirs for the asking. Many agricultural colleges have excellent bulletins on farm wiring. So have some of the manufacturers and power suppliers. The Extension Services in many states have workers who are well trained to advise on wiring problems. Most electric power suppliers have farm service advisors and agricultural engineers who will make up sets of plans and recommendations for the farmer and his electrician to follow. All this advice is given freely, without cost. Those who take advantage of it find that it pays.

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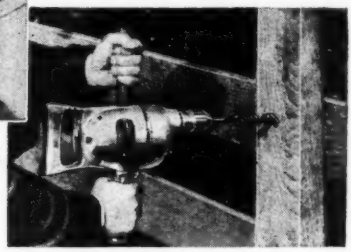

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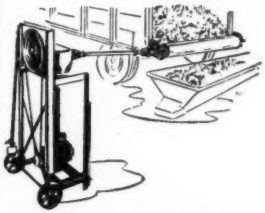

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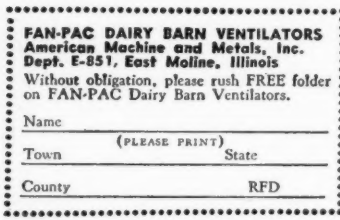

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for Junior Partners

Hi!

Most of this issue is about wiring. If you haven't yet read the other articles, you should. They're written as much for you as for your folks. That's because the wiring system affects the whole farm. You'll see it as you read, here, how Jack French's shop led to better wiring. In this, his Vo-Ag training was a help. But it didn't help him till he started to apply it. Books and papers are easily left in school. The knowledge we gain is carried with us wherever we go. But it's valueless unless we put it to good use.

The teaching of the application of electricity is a part of most Vo-Ag training now. Think back over what you have been taught. Then read the articles in this issue. Then make sure that your farmstead wiring is capable of giving you full measure wherever you need it.

Kenneth V Andrews

Farm Shop Sparks Rewiring Job

Future Farmer French Makes His Training Pay

By **M. B. PENN**†

When Jack French graduated from the Tuscaloosa County High School at Northport, Alabama, back in 1949, he had already made up his mind to go back to his dad's farm in the Echola community and help him run the place. Dad Floyd French was overjoyed at Jack's decision as the dairy that he had just added to his farming operation had placed a considerable load on him and he needed help. Jack is one of those fellows who can do just about anything around a farm. He had taken an unusual interest in his high school vocational agriculture class. Consequently he had become a pretty good mechanic and a fair electrician in addition to his other achievements. He also had won his State Farmer degree. Now

† Mr. Penn is Chief Agr. Eng., Alabama Power Co., Birmingham, Ala.

The new wiring has enabled Jack to use a regular 240-v farm welder. He can now tackle just about any job that needs to be done. One piece of equipment which he likes is the paint sprayer he's showing to S. H. Booker, rural service engineer for the Albama Power Company. Jack has made almost $200 so far this year by using this sprayer.

Jack was ready to go to work.

Mr. French had earned the reputation of being one of the more progressive farmers in the community. He had always worked closely with B. B. Holtun, Tuscaloosa County Agent, and had done a good job at producing on his 200 acre farm. But having Jack at home made a difference. Jack had learned the value of doing things mechanically and gradually began to apply his knowledge to little jobs that he had to do on the

Jack French's wiring troubles are over thanks to this new 100 ampere service entrance. Now there is ample power for his shop tools as well as all the other electrically operated equipment used on the farm.

farm. He bought a couple of portable motors, a small welder, an electrically operated paint sprayer, an electric drill and several other items for a shop that he was fixing up in the rear of the barn. Gradually he was getting to the place where he could keep their equipment in pretty good shape. What's more, he could make a little extra money by repairing trucks, tractors, plows and other items for his neighbors.

But something was happening. Jack's equipment was not working like it was supposed to. His motors had started getting hot and there were times that his welder, even though it was small, just wouldn't work at all. The circuit breaker controlling the circuit to the barn opened frequently when he was right in the middle of a rush job and he'd have to run back to the house to reset it before he could continue his work.

Jack had had a good deal of

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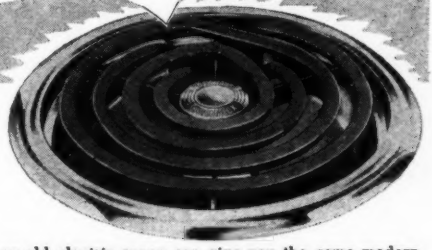

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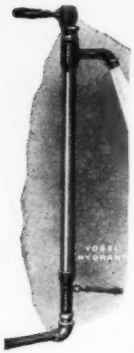

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experience with electricity back in his Vo-ag days but, somehow, it didn't occur to him that he was overloading the one circuit that ran to the barn to the danger point. One day he just sat down to try to figure the situation out. As a result, he and his father contacted the rural service engineer for his power supplier and plans were made to remedy the trouble.

When Mr. French had installed the Grade "A" dairy a few years before, he had wired it separately even though the dairy barn was just across the road from the shop and only a few hundred feet from the house. The house wiring just wasn't heavy enough to carry a completely electrified dairy, even if it were only a small one. When they began studying the rewiring it appeared that they could actually effect a saving if the entire farmstead was placed on one meter so this was done. A 100 amp switch with No. 4—3 wire entrance cable was mounted in the barn which was actually just about midway between the house and the dairy. The switch in the barn was arranged so that they could have eight 120-volt circuits. Seven were set aside for use in the barn and shop, (four are not being utilized now but are being reserved for future use) and one for the well pump. The two 240-volt circuits (the main and the range) are used to serve the dairy barn and the residence. Individual 60-amp switches are located at the house and at the dairy barn to divide the circuits there. (All the load in the home had previously been on one circuit.) Three No. 6 weatherproof wires were strung from the load center at the barn to the residence, the dairy barn and the water pump to assure adequate capacities there. This was right down Jack's line and he and his dad pitched in and did the work themselves.

Benefits Obtained

They're not having low voltage troubles on the French farmstead now. Jack has discarded the small welder that he has been using and now is using a larger 240-volt model that enables him to tackle just about any job that needs to be done. He has added an electrically operated armature growler in the past few weeks to his shop equipment and now operates a regular garage in connection with his other activities. To help him along these lines, Jack has torn up an old Chevrolet truck and with his welder has made the frame into a hoist. His latest venture is in the bee business. He has already utilized his electric saw, lathe and other tools to make four bee stands for the farm and has materials on hand to make a good many more. Aside from the time and money that he has saved in repairing their own equipment, he has made almost $200 so far this year by using his paint sprayer. Jack says that he has also nettled a good bit from working on his neighbor's cars and trucks.

Since the farmstead was rewired some six or eight months ago, Mrs. French has discarded her old wood stove and is now cooking with electricity. She agreed with Jack that everything is working better now that the change in their wiring has been made.

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Skimpy Wiring Steals Your Money

. . . . . (Here from page 8)

we put in larger bulbs to overcome the loss of light, we are paying more for the light we do get than if the wiring were improved. If the voltage or pressure delivered to some of the new fluorescent tubes is too low, they may not light at all, or may flicker. Proper size of wiring is particularly important with fluorescent lamps.

What about heating equipment? Well, it acts about the same as lighting. For every one per cent drop in voltage there is about a two per cent drop in the amount of heat produced, and it takes longer for a heater to give off the same amount of heat. For example, a drop of three per cent in voltage will cause a six per cent loss in heat and will increase by four per cent the time required to give off the same amount of heat.

In the case of an electric water heater, all the heat given off by the heating element goes into the water regardless of whether voltage is correct or low, but low voltage results in slower heating of the water. Similarly on an electric range it results in slower cooking. Low voltage is most serious, and proper size wiring is most important in the case of incubators and brooders for with these devices the life process of the fowl depends upon receiving the right amount of heat.

How Motors React to Low Voltage

Motors are a different story. If the voltage delivered to a motor is lower than it should be, the motor will take longer to start its load and if the voltage is too low, the motor may not be able to start at all. A five per cent drop in voltage cuts the motor's pulling power by about ten per cent. The effect on the motor is just as if we belted it to a machine too large for it to start, such as putting a five horsepower motor on a job that needs ten horsepower. The motor still tries to do the work. It keeps on trying, drawing more current in an effort to make up for the loss in pressure, until it stalls. Unless

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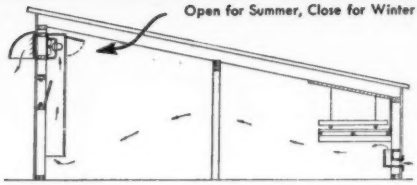

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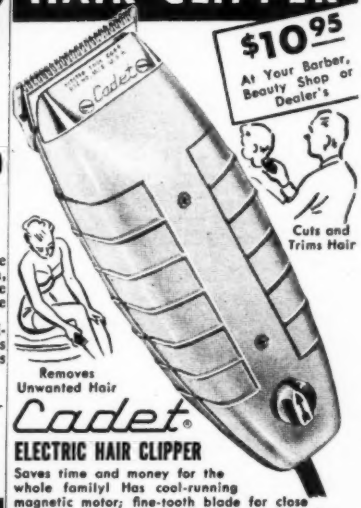

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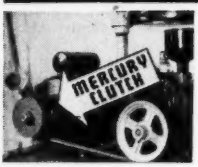

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the motor is protected by special motor fuses or an automatic starter, windings will overheat and burn out. In the case of a large motor, the cost of rewinding the motor might have helped to pay for better wiring.

About ten years ago the New York State College of Agriculture made up a travelling exhibit to demonstrate properly planned wiring and to show how appliances perform on good, adequate wiring and on poor, overloaded wiring. The Extension Service used this demonstration throughout the state and the men in charge gathered up quite a few stories and experiences from their audiences. Here are a few.

Typical Experiences

A certain family had bought a new automatic toaster. While it worked fairly well, it took a long time to make toast. Then they moved to another house and found that the toaster worked so fast that they had to be careful to keep from burning the toast.

A woman had admired the vacuum cleaner owned by one of her neighbors, so she bought one of the same kind. It just didn't seem to have the suction that her neighbor's cleaner had. One day she took her cleaner over to her neighbor's and there it worked just as well as the neighbor's cleaner.

A farmer bought an electric brooder, set it up in a brooder house near one of the farm buildings, and ran a couple of wires out to it. The brooder worked well and he was so pleased that the next year he bought two more, setting them up nearby and connecting them to the same two wires. None of them worked properly and he was inclined to blame the brooders.

In each of these cases the troubles were traced to wiring which was not designed to do the job expected of it. In the cases of the toaster and vacuum cleaner, they were operated in houses that had been wired many years ago when few appliances were in use. There just weren't enough circuits to supply properly all the appliances in use. When these appliances were used in houses with proper

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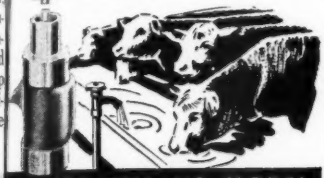

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ly planned wiring both operated as they should. In the case of the brooders, the wiring installed was heavy enough for one brooder but when the other two were connected up, larger wires should have been installed in order to keep the pressure up to where it should be.

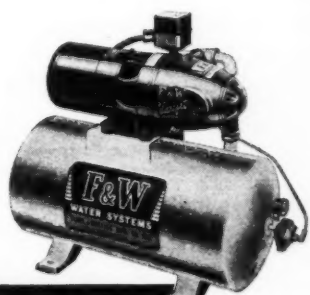
Wiring Troubles May Develop Slowly

Low voltage is a problem that develops slowly. Many farms were wired twenty to twenty-five years ago, when few appliances were on the market and the principal use for electricity outside of the home was for lighting the farm buildings. Today the great majority of farms pump their water electrically, and many heat it electrically as well. Electric cooking is very popular. Probably at least seventy-five per cent of the cows are milked by electric milkers. Milk coolers are used almost universally. Thousands of milk house heaters and barn ventilating fans have been installed in the last three or four years, and hundreds of gutter cleaners. Mow hay driers have come into the northeast in the past six years and these, too, can be counted in the thousands. We just can't expect a 1926 model wiring system to do the job with a 1951 line of electrical farm equipment and do it efficiently and economically. A good, well-planned wiring installation is like a dairy barn ventilation system in one respect; we pay for it whether we have it or not. In the case of the ventilating system we pay in repair bills if we don't install fans to take the moisture out of the stable. And in the case of the wiring system, we pay for warming up wires between the farm buildings when these wires are too small. We pay for the electricity that passes through the meter. If some of it never gets to the appliances but is lost in overcoming resistance in small wires, we are paying for wasted energy. Money spent in this way might better be spent for a modern wiring system.

—I'm proud I am a farmer!—

Good Living STARTS WITH DEPENDABLE
WATER SUPPLY

Work-saving, sanitary hot and cold running water in a modern kitchen, automatic washers, hot baths and showers all depend *first* on an automatic water system. The same is true on the production end of the farm. Milk handling, barn cleaning, poultry and livestock watering are all made vastly easier with running water. But it must come from a dependable water system with the high performance needed for today's farm. An F&W has these qualities whether it is for deep or shallow wells. Every F&W is tested for pressure and capacity before it leaves the factory. F & W freedom from service trouble has been farm-proved for 85 years. Write for "Running Water for Rural Homes," fact-packed booklet to help you choose the right water system for your needs.
FLINT & WALLING MFG. CO., INC.
895 Oak Street, Kendallville, Ind.



F&W WATER SYSTEMS
F&W Varijet Bullet Pump 40-70% More Water
DEPENDABLE FOR 85 YEARS

HEAT

WHERE AND WHEN YOU NEED IT

just plug in a

BURNHAM PORTABLE ELECTRIC STEAM RADIATOR

Here's dependable auxiliary heat for farm use. Sturdy, economical, portable. Banishes chilly spots at low operating cost with actual steam heat. Just plug it in and forget it. Thermostatic controls (finest made) take over from there. Contains anti-freeze! Does not depend on fans to circulate heat. Cast-iron construction for life-time service. A size for every need. Mail coupon for full information. Clip it and send it TODAY!

Ideal for

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Bathrooms	Work Shops	Brooder Houses
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Burnham Corporation, Electric Radiator
Dept. EF891, Irvington, N. Y.
or Zanesville, Ohio

Please send folder telling all about the Burnham Electric Steam Radiators.

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Address.....

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Sanitary **BARN CLEANER**

Removes and loads electrically.

Write to the oldest manufacturer of electric barn cleaners for information and estimates.

Eau Claire Equipment Co.
513 North Michigan Street - Eau Claire, Wis.

TELL your dealer you saw it in

ELECTRICITY ON THE FARM *Magazine*

Dairy Barn Ventilation

Increased profits and healthier animals are yours when you install Venti-Pack—the ventilating fan that's completely automatic in operation.

Write for free details

AEROVENT FAN & EQUIPMENT CO.
Agricultural Division
Lansing, Michigan U.S.A.

Questions and Answers

Motor for Drill

▶**Question:** *How large an electric motor should I have to drive an old fashioned blacksmith type drill press that uses up to 1" drills? I want to use it for drilling in metal.*

A. J. D., Illinois

▶**Answer:** For efficient use with a 1" drill, you will need about a 1 H.P. motor for drilling cast iron or a 1½ H.P. motor for drilling in steel. However, for most general work around a farm shop, you will be able to use a smaller motor. Quarter horsepower motors are commonly used with such a drill press.

Trimmed Beaks Stop Pick-Outs

▶**Question:** *I do not raise many chickens but I do have a lot of trouble with chicks picking each other. Can you give me any information on a "de-beaker" that is supposed to stop this?*

S. J. H., Florida

▶**Answer:** The "de-beaker" consists of an electrically heated cutting blade which operates against a water cooled anvil. It is used for removing a part of the bird's upper beak. The blade cuts and cauterizes at the same time to prevent bleeding. The clipped beak does not interfere with the bird's appetite and it gives an excellent control for cannibalism and pick-outs.

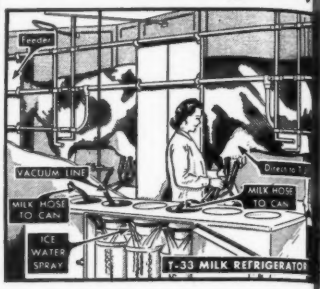
Small Grain Dryer

▶**Question:** *I want to construct a small grain dryer to dry 10 bushels of wheat. Can you tell me what kind of fan to use for this and where I might get one?*

T. K., Penna.

▶**Answer:** A 10 bushel dryer should have a bin 2 feet square and approximately 2 feet deep. The floor of the bin should be made of screen to allow free passage of air and the sides of the bin should be airtight. Below the screen there should be an airtight chamber into which a blower can force air so that it passes up through the screen. This could be made by extending the sides down for approximately 4 inches and sealing the bottom. With a bin this size you will have 4 square feet of surface. Based on 15 cubic feet of air per minute,

Low Cost System Makes Milking Easy



YOU CAN'T REALLY MILK WITHOUT THIS. Direct from cow to cooler milking. No pipe lines needed. Connect milking machine to your T-33 milk refrigerator and have the T-20 Century System of Milking. Own this system for as little as $476.

WRITE FOR FREE PLANS TO CONSTRUCT YOUR MILK HOUSE, MILKING PARLOR AND YOUR MILKING EQUIPMENT.

ZERO MFG. CO.,
627-N Duncan, Washington, Mo.

ELECTRICAL TROUBLE SHOOTER

● Measures A.C. and D.C. Voltages, A.C. and D.C. Current, Resistances, etc.

● Will measure the current consumption while the appliance under test is in operation. The appliance or utility may be plugged directly into the front panel receptacle. A special pair of insulated clip-end leads is included for motors, etc.

● Incorporates a sensitive direct-reading resistance range which will accurately measure all resistances commonly used in electrical appliances, motors, etc. This range will enable continuity checks and tests for shorts and opens.

● Will test thermostats, lamps, tubes, fluorescents, all fuses, condensers, field coils, fans, heaters, washers, soldering irons, melting pots, air-conditioners, ballasts, lighting systems, electric ovens, solenoids, circuit breakers, also all motors — single phase, multi-phase, universal, squirrel cage, induction, in fact every type of motor from fractional H.P. to 2 H.P.

Handsome round cornered molded bakelite case 3¼" x 5⅞" x 2¼". Complete with all test leads and instructions.

$13.90

SUPERIOR ELECTRONIC CO., INC.
Dept. E, 227 Fulton St., New York 7, N.Y.

OUTSIDE RUNNING WATER ALL WINTER

IOWA FREEZELESS HYDRANTS

Order yours now and give your stock running water ALL winter. Avoid costly, time-wasting freeze-ups.

★ Toggle action prevents dribbling.
★ Hydrant drains below frostline.
★ No springs or screw threads to wear out. Save on upkeep.

Install on ANY farm water system. Ask your dealer, or write. . . .

WOODFORD HYDRANT CO.
Des Moines 17, Iowa

DON'T LET WATER PIPES FREEZE
USE FUSED ELECTRIC THERMOTAPE

READY TO USE! JUST PLUG IT IN!

It's 100% SAFE. Comes ready to use. Simply wrap THERMOTAPE around the pipe or article to be protected from freezing and plug it in. That's all there is to a THERMOTAPE installation.

You can depend upon THERMOTAPE. Used with a SMITH-GATES Thermostat, THERMOTAPE goes to work when the temperature drops to near freezing.

100% SAFE

Ideal for Soil Warming
POULTRY WATER WARMER

Just plug the lead cord into outlet and immerse the heating unit in water . . . that's how simple it is to use. The built-in thermostat automatically turns on-and-off the current. It works only when the weather is cold.

SMITH-GATES CORP.
Plainville, Connecticut

Please send us complete information on the Smith-Gates products.

Name.....

Street.....

City.....State.....

per square foot, you will need a small blower that will deliver 60 cubic feet of air per minute against a static pressure of from 1 to 1¼ inches. The small blowers that are used on furnaces to provide draft for burning fine coal have just about such a capacity. A heating supply store can provide you with such a blower.

When Appliances Use Electricity

▶**Question:** *My granddaughter never remembers to cut off the light in her room except when she retires at night. Replying to my comment on this as wasteful, she said that she had read that turning the current on and off consumes more electricity. Can this be true? How many times in an hour of switching off and on would equal or exceed the current burned in an hour steadily? How about small portable heaters and other equipment?* K. C. M., Florida

▶**Answer:** Your electric lights will just consume current while they are operating. The same is true of heating equipment. The number of times they are switched on or off does not affect the current consumption. When motors are started, for a very short interval until the rotor gets up speed, they draw several times their normal running current. This, however, is such a small amount that it can be ignored.

Types of Water Softeners

▶**Question:** *There must be other ways to soften hard water besides the water softening systems I see advertised. Do you have any suggestions?* Mrs. L. K. S., Penna.

▶**Answer:** There are many different products for softening water. Washing soda, borax, as well as some of the new soapless detergents have water softening properties. However, all of these products are used just once and must be replaced. As such, they are a constant cost item in the budget. For extremely hard water they are not entirely satisfactory. On the other hand, water softening equipment contains a substance that exchanges a small amount of sodium salts for the water hardening minerals. After varying periods of use, depending on the hardness of water, the softening material is regenerated simply by flushing the softener with a salt solution. Salt is very inexpensive and as the softener is connected to the plumbing system, any and all water drawn is soft. Most people who have installed such equipment regard them as an excellent investment.

RAPIDAYTON makes the WATER do the running

HERE'S A NEW jet pump, one of a complete new line, which will give you PLENTY of water under pressure for kitchen, bath, garden, lawn or stock.

There's a RAPIDAYTON model (for both shallow or deep wells), water softener or cellar drainer to meet your needs exactly. All are dependable and give maximum service at minimum cost.

See your dealer first but mail coupon TODAY.

THE DAYTON PUMP & MFG. CO.
Dept. EF, Dayton, Ohio
Send me complete details on RAPIDAYTON pumps.

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What Would You Say?

CONTEST

Here is a contest the whole family can enjoy. Cash Prizes will be awarded for the best suggestion for a fourth line to complete the verse at the bottom of this page. Lot's of fun and you may win $25 cash.

RULES—AUG.-SEPT. CONTEST

Seven cash prizes will be awarded for the best last line to complete the verse in the coupon below. Your suggestion should rhyme with the second line.

The first prize will be $25 cash; the second prize $10. In addition, five consolation prizes of $3 each will be awarded for the best last line furnished.

In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

All members of the farm family to whom this magazine was sent may enter but each contestant may submit only one line.

Question "A" must be answered.

Entries must be sent to the Contest Editor, ELECTRICITY ON THE FARM Magazine, 8 So. Dearborn Street, Chicago 3, Ill. before Sept. 15.

The decision of the judges is final and all entries become the property of ELECTRICITY ON THE FARM Magazine.

Winning names and entries will be announced in the Nov. 1951 issue.

Send your entry on the coupon or make out a similar form on a plain sheet of paper or government postcard.

The hay's no longer in the rick
We cure it in the mow
These blowers really do the trick
? ? ? ? ? ?

My suggestion for a fourth line to the above verse is:

.....

(A) Has this issue of this magazine helped you understand why skimpy wiring is wasteful and that a well-planned wiring system saves you more than it costs? ..... What wiring problems would you like to see discussed in future issues of the magazine?

.....

.....

.....

My name is .....

R.F.D. .....Post Office.....

County..... State.....

Awards for May Contest

Spring-cleaning time in days of yore
Caused women folks to fret
But 'lectric helps have eased this chore
? ? ? ? ? ?

The Winning Fourth Lines

FIRST PRIZE—$25 Cash

"'Switch' Cheer for chore and SWEAT."
Mrs. Horace Taylor
R.F.D. 4, Box 116
Junction City, Georgia

SECOND PRIZE—$10 Cash

"'Wired Hand' wed farmerette."
Betty Hornbeck
R.F.D. 2, Buckhannon, W. Va.

Five Consolation Prizes—$3 Each

"It was a 'switch' without regret."
Mrs. Ward Little, Jr.
#4 Oakes Rd., Dayton, Ohio

"For all the 'younger' set."
Jamie Lawhon
R.F.D. 1, Oglethorpe, Ga.

"Back Ache its Doom has Met!"
George R. Davis
R.F.D. 4, Kokomo, Ind.

"Less Elbow Grease and Sweat."
Ethel R. Hulslander
Dillon, Colorado

"When 'watts' outwit dirt's threat!"
Victor L. Bennett
R.F.D. 4, Oconomowoc, Wis.

Honorable Mention

Mrs. Anton Benesh, Two Rivers, Wisconsin, Mrs. Carl J. Callahan, R.F.D. 5, Greenville, Penna., Joseph J. Donohue, Perrinton, Mich., Mrs. Olive V. Giltner, R.F.D. 7, Ottumwa, Iowa, Miss Katherine Goelzer, Oakwood, Wisconsin, Mrs. H. H. Jackson, R.F.D. 2, Deatsville, Alabama, Mrs. Charles Nev, Box 342, Monroe, Ohio, Mrs. Lloyd W. Peavey, R.F.D. 2, Warwick, New York, Mrs. Clarence Stiles, R.R. 3, Georgetown, Indiana, Mrs. Ellison Tom, Jr., Box 503, Andrews, Texas.

HOT in 30 seconds

SUNBEAM HAS the *Thumb-tip Heat Control Dial* up in the handle, where it is always cool and convenient. Easy-to-see. Easy-to-set. A finger-touch sets it for the correct, safe heat you want.

SUNBEAM HAS the *Quick, Steady Heat* made possible by Double-Automatic Heat Control, an exclusive Sunbeam invention. Heats faster—but never overheats. Reaches safe Low Heat for rayons in 30 seconds, quick High Heat for heavy, damp linens in 2¼ minutes.

IN ADDITION, IT HAS the air-cooled, wrist-resting handle... larger ironing surface... permanently attached cord set... new streamlined beauty. Now available in two weights: the 4 lb. Ironmaster with the famous Hard Steel Chrome-plated sole plate, and the 2½ lb. Ironmaster with the aluminum alloy sole plate for lighter weight.

Heats Quicker...
Stays Hotter...
Irons Faster...

Sunbeam

DOUBLE AUTOMATIC

IRONMASTER

REG. U. S. PAT. OFF.

SAFE steady *Low* heat that will not scorch the finest lingerie.

QUICK steady *High* heat for your heavy, dampened linens.

Until you've used Sunbeam Ironmaster, you've no idea how much faster and easier ironing can be. No waiting for it to heat up—it's ready to go in a split minute, and always delivers the *correct,* steady heat for whatever fabric you're ironing. That's why you finish quicker, feeling fresher with a Sunbeam on the job. See your dealer.

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National Farm Electrification Week . . . August 26

EVERY WEEK

farm electrification week in Wisconsin

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The job of making electricity available to Wisconsin farms is done. Practically every farm in the State has electricity available.

Business-Managed Electric Companies Serve over 100,000 Wisconsin Farms

The business-managed, tax-paying electric companies of Wisconsin have brought electricity to more than 100,000 farms. The REA Co-ops serve about 61,000 farms and municipal electric systems about 6,000 in the fringe areas outside their limits.

The business-managed electric companies of Wisconsin have plenty of electric power for any farm that wants it and for any REA Co-op or municipal electric system which wishes to buy from them and save money at the same time.

This magazine is sent to you with our compliments, and with the hope that in it you will find ideas which will be of help on your farm.

IOWA POWER AND LIGHT COMPANY

Electricity is Cheap . .